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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,495	12/10/2004	Sohan Sarin	69993-254192	7090

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EXAMINER	
PHILLIPS, FORREST M	
ART UNIT	PAPER NUMBER
2837	
MAIL DATE	DELIVERY MODE
06/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,495	SARIN ET AL.	
	Examiner	Art Unit	
	FORREST M. PHILLIPS	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 March 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,5-6,8-12,17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson (US5114232) in view of Bristow (US20050067218).

With respect to claim 1 Wilson discloses an acoustic liner arranged to attenuate sound (210 in figure 4) comprising a top sheet (122 in figure 4) having substantially linear characteristics and a liner core or cavity (121 in figure 4), wherein the top sheet comprises a layer of foam.

Wilson does not disclose wherein the foam is a metallic foam.

Bristow discloses the use of porous metallic foam as a sound absorber in a heat temperature region (see figures and paragraphs 23, and 24).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Bristow to use metallic foam as a sound absorber with the liner of Wilson to provide a high temperature sound absorbing material.

With respect to claim 5 Wilson further discloses wherein a first surface of said metallic foam layer is attached to one side of said liner core (refer to figure 4).

With respect to claim 6 Wilson further discloses wherein the liner core (121 in figure 4) is a honeycomb core.

With respect to claim 8 Wilson further discloses wherein said top sheet further comprises a perforate sheet (14 in figure 4) attached to the metallic foam layer.

With respect to claims 9 and 10 while not expressly disclosing the temperatures as claimed, it would have been understood by one of ordinary skill in the art the temperature of the gas stream in Bristow would have been high, and it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233.

With respect to claim 11 While not expressly disclosing including nickel titanium and/or Chromium, it would have been obvious to select such a material, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

With respect to claim 12 Bristow further discloses further discloses wherein the metallic foam is at least partly open-porous (paragraph 23 and given the function of the foam, it would necessarily be open-porous as the gas passes through the material).

With respect to claim 17 Wilson discloses wherein the top sheet is designed for attenuating various acoustic environments such as different flight conditions for aircraft engines (Column 1 lines 5-10).

With respect to claims 18 and 19 Wilson as modified by Bristow discloses a liner for attenuating sounds and is composed of materials able to withstand high heat

environments, it would have been obvious to one of ordinary kill in the art to place the linear in hot stream environment or a hot area of an aircraft engine.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex Parte Masham, 2 USPQ F.2d 1647 (1987).

Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson in view of Bristow as applied to claim1 above, and further in view of Arcas et al. (US5175401).

Arcas is relied on solely to teach the importance of the nonlinearlity factor (Column 2 lines 13-17).

Wilson as modified does not disclose an specific non-linearity factor. IN view of the teachings of Arcas as to the importance of the nonlinearlity factor it would have been obvious to one of ordinary skill in the art to select any desired nonlinearity factor according to the conditions of use, since it has been held that wherein the general conditions of a claim are discloses in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson in view of Bristow as applied to claim1 above, and further in view of Kraft (US6182787).

With respect to claim 7 Wilson as modified discloses the invention as claimed except wherein the liner core is of metallic foam.

Kraft discloses that it is well known in the art to substitute a bulk material for a resonator structure in an acoustic liner (Column 1lines 35-50).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Kraft to have a bulk material in place of the honeycomb structure of Wilson and to use the metallic foam fro simplicity of construction and heat resistance.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson in view of Bristow and Ely (US4291080).

With respect to claim 20 Wilson in view of brown discloses the structure os the claimed invention but fails to discloses the use of brazing.

Ely discloses the use of brazing to attach a metallic foam cover (12 to a honey comb core (column 2 line 55).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Ely to braze components with the structure taught by Wilson in view of Brown to provide a means of securing the components not requiring adhesives.

With respect to claim 21 Wilson further discloses a perforated sheet on the foam to form the top sheet (14 in figure 4).

Brazing is taught by Ely as a method of combining components.

Claims,13-16 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson in view of Bristow and Ely as applied to claim 20 above, and further in view of Lowery .

With respect to claim 13 Wilson in view of Bristow discloses the invention as claimed except wherein the top sheet is compressed.

Lowery discloses wherein the top sheet is compressed (20 in figure 15).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Lowery to compress the top sheet with the liner of Wilson as modified to provide a means of tuning the liner by altering the absorptive properties.

With respect to claim 14 Lowery further discloses wherein the foamed layer is compressed to a different degree in different areas of the sheet (20 in figure 15).

With respect to claim 15 Lowery further discloses wherein the degree of compression is step wise increased/decreased over the top sheet (22 in figure 15).

With respect to claim 16 Lowery further discloses wherein the degree of compression is continuously changed over the top sheet (unnumbered triangular indentations in figure 15).

With respect to claim 22 Wilson in view of Bristow and Ely disclose the invention as claimed except for wherein the top sheet is formed through applying pressure to selected areas of the top sheet surface.

Lowery discloses wherein a foamed layer is formed by applying pressure to selected areas (22 and unnumbered indentations in figure 15).

At the time of the invention it would have been obvious to one of ordinary skill i the art to combine the teachings of Lowery to have indentations compressed into a fpoam layer with the method of Wilson as modified.

With respect to claim 23 Lowery discloses wherein the pressure is applied to a different degree in different areas (refer to figure 15).

With respect to claim 24 Lowery discloses wherein the pressure applied over the different areas is stepwise increased/decreased (22 in figure 15).

With respect to claim 25 Lowery further discloses wherein the pressure applied over the different areas is increased/decreased in a continuous manner (unnumbered triangular indentations in figure 15).

Claims 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilon in view of Bristow, Arcas, Elt and Lowery.

With respect to claims 26-27 Wilson discloses an acoustic liner comprising a liner core (121 in figure 4), and a top sheet (122 in figure 4) wherein the top sheet comprises a layer of foam.

Wilson does not disclose wherein the foam is a metallic foam.

Bristow discloses the use of porous metallic foam as a sound absorber in a heat temperature region, and the compression of the foam to alter the flow characteristics (see figures and paragraphs 23, and 24).

At the time of the invention it would have been obvious to one of ordinary skill in the art to combine the teachings of Bristow to use metallic foam as a sound absorber with the liner of Wilson to provide a high temperature sound absorbing material.

Wilson in view of Bristow does not disclose expressly that the compression of the foam is to satisfy flow and temperature linearity requirements expressly.

Arcas is relied on solely to teach the importance of the nonlinearlity factor (Column 2 lines 13-17).

Wilson as modified does not disclose an specific non-linearity factor. IN view of the teachings of Arcas as to the importance of the nonlinearlity factor it would have been obvious to one of ordinary skill in the art to select any desired nonlinearity factor according to the conditions of use, since it has been held that wherein the general conditions of a claim are discloses in the prior art, discovering the optimum or working range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Lowery is relied on solely to teach the manner of varying the nonlinearity caused by compression.

With respect to claim 28 Lowery discloses wherein the pressure applied over the different areas is stepwise increased/decreased (22 in figure 15).

With respect to claim 29 Lowery further discloses wherein the pressure applied over the different areas is increased/decreased in a continuous manner (unnumbered triangular indentations in figure 15).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FORREST M. PHILLIPS whose telephone number is (571)272-9020. The examiner can normally be reached on Monday through Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on 5712721988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

FP
/Lincoln Donovan/
Supervisory Patent Examiner, Art Unit 2837